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ENG M8-1204
12 November 1958

Chief, Special Programs Staff, OC

Chief, Engineering Staff, OC

Audio Oscillators, IN-1 and IN-9

REF : Memo ENG 8-491 dated 30 April 1958
Memo SPM 8-765 dated 21 August 1958

1. A review of R&D Laboratory fabrication commitments indicates that we have not as yet received an operational evaluation report on the IN-1 oscillator. To facilitate our scheduling please review your requirement for this oscillator in terms of Eng 8-491 and advise as to the suitability of the prototype submitted and, if found acceptable, the quantity desired.

2. With reference to the temperature-vs-frequency stability characteristic of the IN-9 oscillator (SPM 8-765), previous temperature tests and design experience with this circuit and the unijunction transistor indicate that $\pm$ 2% is about as good as can be expected on frequency stability. Although detailed temperature data has not been run for the unit over the reduced range of -20°C to +40°C, previous tests over the wider range from -40°C to +55°C did not show a significant stability improvement in the restricted range. In addition, the tolerance spread of current production unijunction transistors is far too great to support firm stability predictions on the basis of small sample testing. The unijunction transistors now used are not straight production run items but rather are purchased with specified tolerances on certain parameters. Even so, the long term stability of units so purchased cast doubt on the advisability of seeking further stability improvement through transistor selection. It therefore appears that the stability economically feasible in the present IN-9 circuit configuration is $\pm$ 2%. On the basis of this information, please advise as to the suitability of the unit and, if suitable, the number of units required.

25X1

R&D/Lab/NCP/jcm (12 November 1958)

Distribution: Original and 1 - Addressee
1 - Lab Subject
1 - OC-E Chrono
1 - R&D Chrono
1 - Dev/s

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SPM 8-765

TO : Chief, Engineering Division, OC DATE: 21 August 1958

FROM : Chief, Supplemental Programs Division, OC

SUBJECT: Audio Oscillator, IN-9

REF : ENG 8-491

1. Transmitted herewith is the prototype model of the unijunction audio oscillator, IN-9, and the instruction manual which was received from your Division.

2. It is requested that frequency versus temperature tests be performed to determine the stability of the unit with variations in temperature from minus 20°C to plus 40°C. Based upon the results of this additional test, the number of units needed to meet operational requirements will be determined.

[redacted]
Acting

25X1

Attachments::
1 - IN 9 unit (1 each)
2 - Instruction book (1 each)

Distribution:
Orig & 1 w/atts - Addressee

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Office Memorandum • UNITED STATES GOVERNMENT

TO : Chief, Supplemental Programs Division, OC DATE: 30 April 1958

FROM : Chief, Engineering Division, OC

SUBJECT: Transmittal of IN-1 and IN-9 Audio Oscillators

1. Transmitted herewith are the prototypes of the IN-1 Variable Frequency Oscillator and the IN-9 Fixed Frequency Oscillator. Rough draft copies of the instruction books are included for your information and comments. Please return the books along with the prototypes when your evaluation has been completed. If you so wish, you may note your comments directly in the instruction book.

2. Our records indicate that, based upon the acceptance of these prototypes, five units of each of the above oscillators will be required. Since these requirements were established at the time the projects were initiated, it is requested that you review and confirm your current requirements as to quantity. The IN-1 uses a precision potentiometer and gear train which requires a sturdy case and mounting arrangement. If the requirement is for ten or more units, it will probably be more eonomical to cast this case. Thus it would be advantageous to have this information prior to starting additional fabrication.

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Attachment
Prototypes, IN-1 and IN-9 Oscillators
Instruction Books

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